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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/765,952

01/29/2004

Shunpei Yamazaki

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2326

26171

7590

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EXAMINER

BOOTH, RICHARD A

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No.	Applicant(s)	
	10/765,952	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Richard A. Booth	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0104</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of the invention where the group XV elements comprise phosphorous in the reply filed on 11/21/05 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 37 and 49 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki et al., U.S. Patent 5,894,137.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome

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either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Yamazaki et al. shows the invention as claimed including a method of manufacturing a semiconductor device, comprising the steps of: forming a crystalline semiconductor film 403 over an insulating surface; adding impurity phosphorous elements that shifts an energy band of said crystalline semiconductor film to a portion of said crystalline semiconductor film which will come to an active region later to locally form an impurity region; wherein said impurity region 103 is formed so as to be discontinuous on a joint portion between the active region and a drain region (see figs. 1A-2D, 4A-4D, and col. 1-line 58 to col. 10-line 40).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 38-44, 46-48, 50-56, and 58-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,894,137 in view of Yamazaki et al., U.S. Patent 5,869,363.

Yamazaki et al. '137 is applied as above but does not expressly disclose holding catalytic elements that promote the crystallization of the amorphous silicon film on the

amorphous semiconductor film and gettering said elements to a processing atmosphere through a heat treatment in an atmosphere containing halogen elements.

Yamazaki et al. '363 discloses holding catalytic elements that promote the crystallization of the amorphous silicon film on the amorphous semiconductor film and gettering said elements to a processing atmosphere through a heat treatment in an atmosphere containing halogen elements (see abstract and fig. 1D and its description, for example). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Yamazaki et al. '137 so as to include the catalyst elements and gettering of Yamazaki et al. '363 because in such a way less thermal budget will be required and impurities which adversely affect device performance will be removed.

Concerning claims 40-41 and 52-53, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Yamazaki et al. '137 modified by Yamazaki et al. '363 to include a group XIII element such as boron in the impurity regions because it is well known in the art in a n-type transistor to add a p-type dopant to the channel region in order to enable accurate control over the device and allow the device to operate as a NMOS enhancement-type transistor.

Regarding claims 40, 42, 52, and 54, generally, differences in processing parameters or concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical.

Claim 45 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., U.S. Patent 5,894,137 in view of Singh et al., U.S. Patent 5,843,811.

Yamazaki et al. '137 is applied as above but does not expressly disclose the face of the semiconductor film being (110).


Singh et al. discloses the face of a semiconductor film being (110) (see col. 3-lines 55-64). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Yamazaki et al. '137 so as to have the claimed semiconductor face because forming the semiconductor with such a face produces a film with high mobility.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A. Booth whose telephone number is (571) 272-1668. The examiner can normally be reached on Monday-Thursday from 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard A. Booth
Primary Examiner
Art Unit 2812

February 6, 2006